

A STATEMENT OF DEFICIENCIES
ON THE
ENVIRONMENTAL IMPACT STATEMENT
FOR
HYDROCARBON DEVELOPMENT
IN THE
BEAUFORT SEA - MACKENZIE DELTA REGION

ISSUED THROUGH
THE DEPARTMENT OF INDIAN AFFAIRS
AND NORTHERN DEVELOPMENT
TO
DOME PETROLEUM LIMITED,
ESSO RESOURCES CANADA LIMITED,
GULF CANADA RESOURCES INC.
AND OTHERS

BY

THE BEAUFORT SEA
ENVIRONMENTAL ASSESSMENT PANEL

MARCH 1983

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SUMMARY

The Beaufort Sea Environmental Assessment Panel has reviewed the Environmental Impact Statement (EIS) for Hydrocarbon Development in the Beaufort Sea - Mackenzie Delta Region prepared by Dome Petroleum Limited, Esso Resources Canada Limited and Gulf Canada Resources Inc. and transmitted to the Panel by the Department of Indian Affairs and Northern Development in November 1982. The Panel has identified major deficiencies in the EIS in each of the following categories:

1. Assessment of Socio-economic Effects
2. Assessment of Environmental Effects
3. Oil Spills
4. Zone Summaries

In addition, the Panel has identified a number of concerns about which it wishes the Proponents to provide further information by means of discussion papers to be submitted at the same time as the response to the Deficiency Statement.

TABLE OF CONTENTS

	<u>Page</u>
SUMMARY	1
TABLE OF CONTENTS	2
INTRODUCTION	3
MAJOR DEFICIENCIES	5
1. ASSESSMENT OF SOCIO-ECONOMIC EFFECTS	5
A. Impact Assessment Methods and Analyses	7
B. Mitigation and Monitoring	11
C. Compensation	13
D. Special Concerns	14
1. Native Traditional Lifestyle and Culture	14
2. Northern Resident Access to Employment and Economic Benefits	15
2. ASSESSMENT OF ENVIRONMENTAL EFFECTS	17
A. Cumulative Environmental Effects	17
B. Mitigation	18
3. OIL SPILLS	22
4. ZONE SUMMARIES	24
FURTHER INFORMATION	27
APPENDIX A: ITEMS FOR CONSIDERATION WHEN PREPARING ZONE SUMMARIES	29

INTRODUCTION

In general, the Beaufort Sea Environmental Assessment Panel commends the Proponents on the information presented in the EIS. The Panel recognizes the substantial efforts the Proponents have made to meet the detailed requirements of the Guidelines for the preparation of the EIS. The vast project area and limited amount of northern research made the Proponents' task difficult. In addition, the Panel recognizes and appreciates the efforts made by the numerous reviewers and intervenors to examine critically the EIS and to prepare their comments for the Panel's use.

The Panel bases its identification of deficiencies on a detailed review of the EIS and upon review of commentary on the document from northern communities, native organizations, governments of Yukon and Northwest Territories, special interest groups, federal government agencies, the Panel's technical specialists, and the general public.

The purpose of identifying deficiencies is to obtain necessary additional information to prepare all participants for effective discussions at the public sessions. For this reason the Panel requires the Proponents to respond to the deficiencies before the public sessions. The Panel has identified other concerns, which it has not classed as deficiencies, but for which it requires additional written information to be submitted at the same time as the response to the Deficiency Statement so that all participants will have adequate time to become familiar with the information before public sessions commence.

The Proponents are expected to review all interventions on the EIS for a more complete understanding of the views of the participants and to be prepared to respond to the identified concerns.

The Guidelines stress the importance of the input of northerners into the EIS (Guidelines 2.3.3 and 2.4.4). The Panel acknowledges the efforts of the Proponents to consult with northerners, but the comments of the northern intervenors together with the Panel's own analysis of the EIS lead to the conclusion that this consultation could have been more thorough.

Many of the concerns identified by the Panel can be addressed at Community Sessions, or General Sessions with help from the Proponents, Panel technical specialists, native organizations, special interest groups, government agencies, community residents and the general public. Some questions may be addressed more appropriately to government agencies, especially where provision of such information is a government responsibility. Nevertheless, there remain major deficiencies in each of the following categories:

1. Assessment of Socio-economic Effects
2. Assessment of Environmental Effects
3. Oil Spills
4. Zone Summaries

These must be addressed before the Panel can proceed.

In responding to these deficiencies, the Proponents are urged to be succinct, yet complete.

MAJOR DEFICIENCIES

1. ASSESSMENT OF SOCIO-ECONOMIC EFFECTS

The Panel has determined that deficiencies are present within those sections of the EIS which address the effects of hydrocarbon production on northern communities. While the documentation provided by the Proponents does indeed include much of the basic inventory information required by the Guidelines the use and analyses of these data have not met the expectations of the Panel. The socio-economic impact analyses have not presented an adequate picture of the likely effects of the proposed development on the northern residents and their social environment.

The socio-economic impact assessment does not provide an adequate description of:

- methods used to determine impacts;
- social and community impacts resulting from development;
- proposals to mitigate and monitor adverse impacts;
- industry commitment to these proposals;
- compensation for unavoidable adverse impacts.

These deficiencies are sequential in nature, adding deficiencies in each subsequent level of analysis.

While these deficiencies relate in large part to socio-economic impact assessment methods there has not been adequate and relevant consultation between the Proponents and the communities during preparation of the EIS. The Panel Guidelines indicated that the importance of this input "cannot be stressed enough" and the Proponents were asked to "Identify how and to what extent input from concerned individuals, public groups and communities has been obtained ..." (G: 2.4.4). Limited consultation has resulted in an insufficient identification of community concerns and information, particularly in communities other than Inuvik and Tuktoyuktuk. This, in turn, has resulted in only a general discussion of the social consequences of the proposed development.

To assist the Proponents in preparation of additional materials to address these deficiencies the Panel has outlined specific questions which are discussed below under the following headings:

- A. Impact Assessment Methods and Analyses
- B. Mitigation and Monitoring
- C. Compensation
- D. Special Concerns

It will be essential that this new material be distributed in a format appropriate for easy community review. Northern residents must be provided with an adequate picture of the socio-economic consequences of various alternatives for Beaufort Sea hydrocarbon production and transportation, particularly if they are to recommend a preference at the public sessions.

A. Impact Assessment Methods and Analyses

Deficiency

The EIS did not adequately describe the impact assessment methods used and did not adequately analyze the socio-economic impacts of the proposed development as requested in Guidelines 1.3.4, and 2.4.4. There has been insufficient focus on the potential social and community effects of the direct and indirect changes induced by the proposed development.

The description and analysis for Inuvik provides a good example to illustrate this deficiency. Volume 5 provides more than 30 pages concerning Inuvik, most of which consists of a discussion of existing conditions. A small portion describes the effects of development on the demographic structure of the community and the forthcoming infrastructure and service requirements if development proceeds. There is minimal discussion of the social effects of the changes introduced by the development. While the Inuvik sections represent a good attempt to discuss, in the broadest terms, the local economies and some future changes, it does not provide the impact assessment requested in the Guidelines, particularly with respect to social effects. The analyses of the socio-economic effects of development in the other communities are not as detailed and suffer additional problems due to a less complete baseline data inventory.

Panel Requirements

The Panel requests that the Proponents identify and compare the socio-economic impacts resulting from developments, including production, associated with the following transportation alternatives:

- a 12" pipeline
- 200,000 ton tankers
- a 12" pipeline and 200,000 ton tankers
- a 42" pipeline.

In fulfilling this request, place special emphasis on explaining the differences among them, using the impact assessment methods outlined in (a) to (g) below.

- (a) For each development alternative, forecast the manpower requirements for each zone, for both construction and operation aspects of the project. Using appropriate job categories related to the eligibility of northerners for jobs, compare the forecasted manpower requirements to the skill levels of northerners by region. State the assumptions, methods, criteria, and potential errors in this analysis.
- (b) Translate the employment data, using appropriate multipliers, into a description of potential changes in population structure and distribution within the existing communities. Discuss the

likely numbers of transient job seekers attracted to these communities. State the assumptions, methods, criteria and potential errors in this analysis.

- (c) Describe the changes in employment distribution and structure, and income distribution and structure within the communities, especially changes affecting vulnerable social groups (elderly, handicapped, unskilled workers, persons on low or fixed incomes, etc.). State the assumptions, methods, criteria, and potential errors in this analysis.
- (d) Describe the social consequences of the changes outlined in (c), e.g. impacts on physical and mental health, dependency, lifestyle expectations, family cohesiveness and community integration. Include the effects of the presence of transient job seekers in these communities, and any other growth-related indirect impacts.
- (e) Discuss the social impacts of the presence of a construction phase work force on each of the communities. Refer to the difference between the effects of the use of rotational employment arrangements for northern residents and the use of a transient work force from outside the region.
- (f) The social impacts of development will vary with the settlement pattern of the new residents within the region and for each community. Given the

population projections provided in (b), compare the social effects of housing new residents in:

- existing communities
 - new communities established in isolation from existing communities
 - new communities with access to existing communities.
- (g) Discuss the social effects of the post-construction downturn in project-related employment and the social effects of subsequent economic cycles and unexpected project shutdown.
- (h) Assess the significance of effects outlined in (d), (e), (f) and (g) with reference to the ability of the various communities to adjust and respond. Evidence to support any conclusions concerning community adjustment and response should include results of past experience in other resource development communities.

The impact discussion should be referenced against socio-economic analyses undertaken for other resource development communities. Other potential data sources include industry experience during the exploration phase, further use of data from all levels of government, and further community consultation.

B. Mitigation and Monitoring

Deficiency

The EIS did not adequately describe and evaluate measures to monitor and mitigate socio-economic effects of the development proposals. The Guidelines stress that such measures should be the focus for the impact analysis in the EIS (G: 1.4.4, G: 2.4). The Guidelines on monitoring (G: 2.4.6) required the EIS to describe a program designed to monitor socio-economic consequences of the development proposals.

Certain issues, however, are described in the EIS in some detail. For example, impacts associated with native resource harvesting were identified and mitigative measures proposed and discussed with respect to their potential effectiveness. The discussion included the effects of specific developments on renewable resources, and provided maps showing where effects could occur. Enhancement through renewable resource development was suggested as an option. However, monitoring programs were inadequately discussed.

The analysis of the effects of the Proponents' proposals on native resource harvesting should have been extended to include an analysis of the social, economic, and cultural consequences of lost traditional resource harvesting opportunities, together with mitigation and monitoring of these consequences. This analysis would have been assisted by an intensive community consultation program and a review of past industry experiences in the north and of the experiences of other resource areas.

In addition, a more thorough analysis of certain issues of community concern should have been done. For instance, the need for a more definitive program to ensure access of northerners to employment could have been described. Specific barriers to employment should have been addressed in detail with measures to reduce or avoid these barriers. Programs to monitor the success of such programs should have been outlined. Similar treatment should have been given to other concerns, such as transient job seekers, alcoholism, northern business opportunities, etc.

Panel Requirements

The Proponents should address the original Guidelines on mitigation and monitoring (G: 2.4.5 and G: 2.4.6), consider the socio-economic effects identified in Section A and provide the following information.

- (a) Describe the mitigation measures and monitoring programs which could be applied to each of these effects.
- (b) Assess the potential effectiveness of each mitigation measure and monitoring program based on: a discussion of previous experience of the petroleum industry in the north; comparison with experience in other resource areas; and discussions with communities and social groups.
- (c) Recommend possible mitigation measures and associated programs to monitor their effectiveness.

- (d) State the specific commitments the Proponents are prepared to make toward implementing these proposed measures.

C. Compensation

Deficiency

Although the subject of compensation was referred to several times in the Guidelines, the discussion in the EIS was inadequate.

Panel Requirements

The Panel requires more information on the methods available to compensate northern residents for losses resulting from industry activities. This information should include a discussion of industry responsibilities and commitments, legal and equity issues, feasibility, and other relevant factors.

In responding to the above requirements, the Proponents should focus on the following examples:

- compensation for a major disturbance of a trapline in the Mackenzie Valley;
- compensation for the impacts of a major oil spill in Lancaster Sound; in this case the Proponents should specify what arrangements should be made to establish financial responsibility to cover third party liability and clean-up;

- compensation for disturbance and deflection of marine mammals such as narwhal or beluga due to marine traffic or modification of ice regimes.

D. Special Concerns

In addition to the requirement that the Proponents respond to deficiencies concerning impact analyses, mitigation, monitoring and compensation of socio-economic effects, the Panel requests the Proponents to address the following two deficiencies.

1. Native Traditional Lifestyle and Culture

Deficiency

The treatment in the EIS of potential adverse effects of the development on native traditional lifestyle and culture is inadequate and does not conform to Guideline 2.4.4.2. The Panel has particular concern about the social consequences of changes to harvesting activity, ethnic composition of the communities, native political organizations and wage dependency as a result of development. These social consequences could lead to significant impacts on the existing native traditional lifestyle and culture.

Panel Requirements

The Proponents should discuss:

- (a) the nature and likelihood of changes occurring as a result of development, e.g. the possibility of the ethnic majority in a community becoming a minority;
- (b) the consequences of these changes to native traditional lifestyle and culture;
- (c) the relative ease or difficulty of native communities to adjust to these changes and the measures which can be used to ease this adjustment;
- (d) future research requirements and industry policies to aid native communities in their adjustment to the proposed development.

2. Northern Resident Access to Employment and Economic Benefits

Deficiency

Access to employment and other economic benefits for northern residents has not been adequately considered in the EIS. The Panel has particular concerns about:

- the effect of union requirements on access to employment for current northern residents;
- education and training barriers to employment and to advancement possibilities for northern residents;

- age and sex barriers to employment;
- attitudinal and lifestyle barriers to employment;
- hiring qualification barriers to employment;
- transportation barriers to employment.

Panel Requirements

The Proponents should:

- (a) outline their policies and intentions with regard to northern employment, with special reference to each of the above concerns;
- (b) provide an indication of their commitments and programs taking into account experience with similar programs in analogous situations in Canada or other countries;
- (c) outline their methods for monitoring the success of the programs and alternative plans.

2. ASSESSMENT OF ENVIRONMENTAL EFFECTS

The Panel recognizes the difficulties inherent in providing an assessment of the impacts of the proposed developments given the frequent, sometimes unavoidable, weaknesses in data bases and knowledge concerning project impacts and ecosystems, and the preliminary nature of project designs and technology. However, the Panel is not satisfied that conclusions concerning environmental risks and effects can be inferred from the evidence presented in the EIS. With the exception of cumulative effects and mitigation, most concerns will be addressed at the General and Community Sessions.

A. Cumulative Environmental Effects

Deficiency

Cumulative and synergistic effects were inadequately described in the EIS. Impacts were often treated in isolation from each other and, therefore, the overall impact may have been underestimated. Although the intent of the Guidelines was that the EIS should focus on significant effects of the proposal (G: 1.1, G: 2.4.2, G: 2.4.4), the EIS should have provided more information on cumulative and synergistic effects as asked for in Guidelines 1.3.6.4 , 1.3.7, 2.2.2, 2.4, and elsewhere. For example, the treatment in the EIS of cumulative and synergistic effects is often subjective and analyses are not well presented. To address this deficiency specific requirements are detailed at the end of this section.

B. Mitigation

The Panel believes the EIS should have, in some cases, assessed impacts prior to implementation of mitigative measures. It is not reasonable, however, that project impacts be assessed completely in the absence of any mitigative measures, since many of these are required by government or necessitated by engineering design considerations. In these cases, assessing impacts on a pre-mitigative basis would overstate expected impacts. On the other hand, the assessment of impacts on a post-mitigative basis cannot be accepted without some discussion of the effectiveness of mitigative measures. If mitigative efforts should fail, impacts would likely be greater than stated in the EIS.

Deficiency

Mitigative measures were not adequately described in the EIS. The Guidelines asked for a description of mitigative measures (G: 1.4.1, G: 1.4.4, G: 2.1, G: 2.4, G: 2.5). The intent of the Guidelines was that mitigative measures should be identified and that "the potential for effectiveness of each proposed measure should be discussed" (G: 2.4.5). Where the effectiveness of mitigation measures is uncertain, the discussion was to include recommendations for specific monitoring programs. Knowledge gaps concerning mitigative measures, and a description of industry's role in implementing those measures should have been identified wherever possible (G: 2.4.5; G: 2.4.6). The EIS should have

specified mitigative measures to be used to avoid or reduce potential impacts, identified situations where no mitigative measures were available, and developed a program to monitor the effectiveness of the mitigative measures proposed. Specific requirements of the Panel on mitigation are outlined below.

Panel Requirements

The compliance with these Guideline requirements in the EIS is uneven, leading to considerable difficulty in judging the Proponents' assessment of the residual effects of the proposed developments. In order to provide a basis for discussion of cumulative effects and mitigation at General and Community Sessions, the Proponents should provide the information requested in (a) to (h) below to fulfill these deficiencies using the following species as examples:

1. Terrestrial Mammals - Porcupine Caribou
2. Marine Mammals - Ringed Seal, Narwhal

The Proponents may select additional examples to address this deficiency.

The Proponents should compile and reference the information in the EIS and any other information that may be appropriate in responding to the following.

- (a) Identify project components and associated activities which directly or indirectly affect the respective species.

- (b) Explain how project components and associated activities might affect the respective species and provide a specific list of mitigative measures which can be applied to avoid or reduce these effects.
- (c) Discuss the potential effectiveness of each proposed mitigative measure in avoiding or reducing environmental effects on the respective species, with comment on technical, legal, and economic feasibility of each measure. Include a comment concerning who is responsible for each mitigative measure and what commitments industry is prepared to make with respect to each.
- (d) Indicate what the residual impacts on the respective species are likely to be, given (i) successful implementation of mitigative measures, (ii) partial or total failure of mitigative measures. Provide evidence and reasoning to support conclusions concerning assessments, including reference to background reports and other studies.
- (e) Provide a description of monitoring programs necessary to evaluate the effectiveness of the specific mitigative measures proposed.
- (f) State the cumulative and synergistic effects of the project on the respective species and give the rationale for the conclusions reached.

- (g) Discuss the adequacy of data bases and knowledge with reference to the project effects, mitigative measures, and other conclusions reached together with proposed research to fill data gaps.
- (h) Assess the social role and significance of the respective species to northerners and how the potential effects would alter social/cultural values.

3. OIL SPILLS

The Panel recognizes the difficulties faced by the Proponents in providing an assessment of the effects of oil spills. These difficulties include the availability of data, the state of development of modelling techniques and the status of knowledge regarding environmental impacts. The Panel also recognizes that the Proponents have advanced the state of the art with respect to dealing with oil spills and their effects in Arctic environments. It is clear, however, that the issue of major oil spills is of immense importance to the public and that the Panel must be satisfied that adequate knowledge exists to evaluate the effectiveness of dealing with a potential spill.

To this end the Panel requests the following:

- a) the Proponents' probability estimate of the percentage of oil produced that may be released to the environment from spills and chronic discharges and an estimate of the volume for each type of release (tanker spill, blowout, pipeline leak, small platform spills, formation waters, etc.);
- b) a discussion of the practicality of clean-up strategies under adverse environmental conditions;
- c) the proven reliability of proposed clean-up procedures and equipment, e.g. burning, dispersants;

- d) estimates of the percentage of oil that present clean-up technology could either collect or neutralize for each of the 10 spill scenarios described in Volume 6;
- e) an elaboration of a monitoring program which will detect at an early stage the accumulation of hydrocarbons in the production area;
- f) an evaluation of the possibility of ice/oil mixtures resulting from a small leak from production systems or pipelines or from a major spill moving undetected for long distances. Consideration should include the movement of ice/oil mixtures from the cold waters of Davis Strait to the warmer waters of the Labrador Sea.

4. ZONE SUMMARIES

Deficiency

The Proponents did not provide the Zone Summaries requested in the Guidelines.

The Panel believes that the production of separate complete Zone Summaries for community use is critical to the successful participation of the communities in the public sessions.

Chapters 2, 3 and 4 of the Summary Volume of the EIS do not meet the requirements for Zone Summaries as described in the Guidelines 2.5 which states:

"The purpose of this summary is to provide the residents of the affected communities with a clear, concise summary of the full EIS, presented on a zone-by-zone basis. It should be a separate document for each zone. It should be written in plain, non-technical language and should include an Inuit and Dene language translation. The zones to be used for this document are to include at least the three zones outlined in Section I.

"The summary should briefly describe the proposal and, on a zone-by-zone basis, the existing environmental and socio-economic setting, the major beneficial and adverse environmental and socio-economic effects associated with the proposal, the proposed mitigation, enhancement and compensatory measures, and the proposed monitoring programs.

Those aspects of the proposal and associated effects which are likely to be of greatest interest and concern to the communities should be highlighted. Also, an indication of possible participation by the respective residents in various activities associated with the proposal should be included."

The three chapters of Volume 1 are not written in plain non-technical language for community review as requested. For instance, the discussions dealing with the physical setting and environmental impacts are frequently presented in semi-technical language. The material has not been written as an easy-to-read summary for readers in potentially affected communities.

These chapters do not include a brief description of the proposed development. The development is covered in Chapter 1, but not in Chapters 2, 3 or 4, which are the regional summaries. This then requires reviewers to read Chapter 1 and then their own chapter before they can grasp the impact of the proposal on their community.

The three chapters also focus on the physical setting and environmental impact analysis almost to the exclusion of socio-economic aspects. More space, for example, is given to photographs of ice and wildlife than to a discussion of the effects of development on people. A community reviewer has great difficulty in finding out what development may mean to the life of his community. This, coupled with less than thorough community consultation, becomes particularly serious.

Panel Requirements

The Panel believes that in order to rectify this Guideline deficiency, the Proponents, with input from community residents, should prepare three separate volumes as Zone Summaries, one for each of the three zones: Beaufort Sea - Mackenzie Delta, Mackenzie Valley, and Northwest Passage. The effects of the project on the Yukon should be included in the Beaufort Sea - Mackenzie Delta volume. Possible effects of oil spills north of 60° North latitude upon the Labrador Coast should be included in the Northwest Passage volume. Each Zone Summary should be an easy-to-read document written in simple English. The Northwest Passage volume should be produced in English and Inuktitut with each language appearing in separate columns on the same page. The Proponents should provide the information on an overall zone basis and where appropriate, on a community basis. For the Proponents' guidance, some additional comments relating to the Zone Summaries are attached as Appendix A.

FURTHER INFORMATION

In addition to the EIS deficiencies the Panel has identified a number of concerns which it requests the Proponents to address in discussion papers. These papers will be read by the Panel and made available to the public before the public sessions and should aid discussions of the broad topics to which these concerns relate. Although the Proponents addressed many of these topics in the EIS, nevertheless, papers focusing on these particular concerns together with some of the Proponents' plans for possible resolution of them would aid the discussion at the public sessions.

THE CONCERNS THAT FOLLOW ARE NOT FORMALLY CATEGORIZED AS DEFICIENCIES OF THE EIS.

The Panel requests that the discussion papers address the following concerns:

1. The responsibilities of industry and government with regard to an oil spill contingency response and clean-up should be described in order to demonstrate that a coordinated, efficient and effective decision-making framework and response capability exists.
2. The effect of ice-breaking ships on traditional hunting activities and travel modes, such as:

- a) the possibility of hunters being inadvertently set adrift on an ice pan because of ice-breaker or tanker activity;
 - b) the possibility of increased amounts of ice from Viscount Melville Sound and Barrow Strait entering Admiralty Inlet as a result of destabilization by ships, and remaining for longer periods of time;
 - c) whether or not the floe edge at the northern end of Navy Board Inlet is likely to be affected by tanker traffic.
- 3. The effect on the ice regime of tanker movements through a narrow passage such as Prince of Wales Strait during the freeze-up period.
 - 4. The Proponents' plans to control changes in existing ice behaviour patterns as a result of the increased number of artificial islands and ship movements through ice in the Beaufort Sea.
 - 5. The advantages and disadvantages of sharing one or more shorebases and their location.
 - 6. The problems associated with localized high ice content areas, e.g. ice wedges, in the design and construction of small diameter pipelines.

APPENDIX A
ITEMS FOR CONSIDERATION WHEN PREPARING ZONE SUMMARIES

1. FORMAT SUGGESTIONS

Each volume should contain not more than 30,000 words and should be written in non-technical language. The Proponents should explain by example the meaning of the terms describing impacts as "major", "moderate", "minor" and "negligible". Any charts or graphs used in the Zone Summaries should be accompanied by a narrative to explain the diagram.

2. CONTENTS

Refer to Guideline 2.5 and note especially that the Zone Summaries should contain:

- a) a brief overview of the proposal concentrating on those parts of most interest to the residents of a particular zone;
- b) individual community descriptions which could include standard statistics, such as population, age, sex, education levels, employment categories, household income, labour force etc., if these statistics would

be influenced by the development and a description of how they would be influenced;

- c) a description of development impacts on each community, including an explanation of impact assessment methods used;
- d) a brief description of major culturally important or endangered wildlife populations in each zone and the impact on those populations as a result of the development;
- e) a brief description of the impact of oil spills should they occur in the zone;
- f) a summary of development impact scenarios as follows:

For the Northwest Passage Zone - the impact of 200,000 ton tankers on the zone

For the Beaufort Sea - Mackenzie Delta Zone - the impact of production and transportation for each of:

- (i) a 12" pipeline
- (ii) 200,000 ton tankers
- (iii) a 12" pipeline plus 200,000 ton tankers
- (iv) a 42" pipeline

For the Mackenzie Valley Zone - the impact of transportation for each of:

- (i) a 12" pipeline
 - (ii) a 42" pipeline;
-
- g) a summary of policies the Proponents are prepared to adopt for affected communities to lessen the effects of a shutdown of operations for economic reasons two years after the start of production;
 - h) a brief description of compensation policies of the Proponents;
 - i) a brief description of the effect of union requirements on access to employment for current northern residents within the zone;
 - j) a list of barriers to the employment of northerners within the zone and the Proponents' suggestions to overcome the barriers;
 - k) the definition of preventative and corrective mitigation with examples of each;
 - l) the degree and nature of community participation in an effective monitoring program associated with environmental and socio-economic effects.

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